EXTERNALSECTORMACROECONOMIC INDICESANDREAL ECONOMY OF NIGERIA: AN EMPIRICAL ANALYSIS (1981 – 2020)

Abstract

In recent times, the external sector of the Nigerian economy has been characterized by instability while the overall performance of her real economic growth has remained suboptimal. This study therefore seeks to investigate the relationship between Nigeria's external sector indicesand her realeconomic growth, (RGDP), with data sourced from CBN,spanning through 1981 to 2020;applyingJohansen Co-integration technique, Error correction model (ECM) and Granger Causality test.The selected external sectorindices includeForeign Exchange Rate (FXR), Total Export (EXP). Total Import (IMP), External Debt (EXTD), External Debt ServiceCharges, (EXDINT),and Foreign Direct Investment (FDIR).The empirical evidence demonstrates that, in the long run, only FDIR contributes positively and significantlyto(RGDP)while the rest have adverse effect on RGDP.. The Granger Causality test established that only FDIR has bilateral relationship with RGDP while RGDPprecedes EXP, TORand FXR, implying RGDPdetermines those variables without a feedback.EXTD, EXDINT and IMPmaintained independent relationship with RGDP. The coefficient of the ECM term which measures the speed of the adjustment at which equilibrium is restored toRGDP, is significant and correctly signed (negative) and suggests thatthe performance of RGDP process in Nigeria, adjusts slowly to the short-run disequilibrium changes in the selectedexplanatory variables;indicatingpolicy lag effect. Therefore,there is need for: effective andsustainable exchange rate management; economic efficiency, driven by infrastructural development and enhanced technological capabilities, to beep up export production; efficient debt management; stable policy and sustainable economic reforms/policies to enhance more FDI.Finally, the policy makers should take cognizance of the lag effectand design policies in line with the expected magnitude of expected changes.

Key words: External sector indices, Real economic growth, Co-integration test,Error correction model and Granger Causality test.

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1.1Introduction

In most developing economies, one of the cardinal macroeconomic objectives is maintenance of sustainable economic growth and development.Regrettably, in recent times, the overall performance of Nigeria's real economic growth has remained suboptimalwhile her external sector has been characterized by instability. Financial and economic stability isparamount for economic growth, as most transactions in the real economy, are made through financial system. Instability can severely disrupt the confidence of economic system.(Ewubare and Obayori(2015),[23] (Nwanze, 2017) [47], (Akanbi and Dutoit (2010) [1] andCBN Financial Stability ReviewNov.(2020).[11]Controversies that trail growth-related issues in Nigeria are many, but the present and most incontrovertible, is the challenge posed by poor performance of the external macroeconomic indicators and how the policy cardinal goals could be achieved, (Udeaja and Obi (2015)[57],(CBN 2013)[15], (IMF (2009)[29] .

The Nigerian economic planners have been in the forefront to stabilize theexternal sector in order to foster sustainable growth. In pursuit of this objective, they have initiated (and are still pursuing) several economic reforms/policies, in line with global trend but not much has been achieved. *(*Mordi et al (2010)[44]and (CBN,Financial StabilityReview,November ,(2020)[11].

Nigeria's external sector reflects the economic transactions between the residents of Nigeria and the rest of the world. The sector can be in equilibrium or disequilibrium (surplus or deficit). A deficit outcome represents a situation where receipts are inadequate to accommodate the payments, while a surplus position reflects a situation where receipts are in excess of the payments.(CBN, (2010)[14] An ideal external sector is one that is stable and in equilibrium over time. Equilibrium is achieved when external receipts and payments are equal, the exchange rate is stable and external reserves are adequate. However, in more practical terms, such a perfect system hardly exists.(Ephraim (2002),[22](Jah (2003).[30]

Economic growth proxiesby Gross Domestic Product confers many benefits which include: raising the general standard of living of the populace as measured by per capita national income; making income distribution easier to achieve; and enhancing the time frame of accomplishing the basic needs of man to a substantial majority of the populace while economic stagnation can bring destabilizing consequences on the citizenry. (Lipsey, (1982),[39]

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The effective management of an economy is therefore critically dependent on proper understanding of the interrelationships among the variouscomponents and sectors of the economy, as well as those factors that influence their dynamics. This is particularly relevant for economies that seek to move on the path of sustainable growth. It is also important in this regard, to bring to the front burner, those binding constraints to growth of the economy, which can only be effectively addressed, if policy makers can learn from the experience.(Mordi et al (2010) [44] and CBN (2013) [15]

In consideration of the above background, the desire to have a better understanding of the workings of the external sector indices and their impact on the Nigeria'sreal economy motivates this study. The framework of the studyis based on the Balance of Payments (BOP) accountthat captures the transactions on goods, services and financial flows between a domestic economy and the rest of the world, in addition to other important external sector indicators.

The problem that led to this study centers on the instability of the Nigeria's external sector and the unimpressive performance of her real economy. In the first place, the Nigerian economy isbasically an open economy with international transactions constituting an important proportion of her aggregate economic activity. Consequently, like many other developing economies, the economic prospects and development of the country, rest critically on her international interdependence. Over the years, despite the considerable degree of her trade openness, Balance of Payments deficits have become serious issues in Nigeria since 1970s. (Ewubare and Obayori (2015),[23]Nwaeze (2017).[47] World Bank (2017) [58], (CBN, FSR Nov.(2020). [11] Her performance in terms of her economic growth has also remained sluggish and discouraging, (Odedekun (1997), [50] and CBN FSR Nov.(2020). [11] and(Maku (2006) [41]

Many other reasons have been advanced to the above problem which include: negligence of her non-oil export due to the increasing oil price in the international crude oil market; persistent high demand for foreign goods and services as well as increased importation of input for manufacturing sector in the face of dwindling foreign exchange earnings,external debt overhang,decline in fresh equity participation in Nigerian enterprises, and among others.

For instance, despite the princely position of agriculture as the mainstay of the external sectorincome of the Nigerian economy in early 60s, the fortunes of the sectorstarted changing significantly fromlate 70s. Negligence of agricultural produce which accounted for over 80.0 per

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centofexport income on average in early 1960s, has been on the increasewith oil revenue representing almost 90 per cent of foreign exchange earnings and about 85 per cent of total exports. (CBN (2010) [14]..CBN, (2013),[15], World Bank (2017),[58] CBN (2020).[16]This was attributed to the discovery of oil in commercial quantity in Oloibiri in Bayelsa State in 1956, coupled with the oil-boom resulting from the Arab oil embargo on the USA in 1973.(CBN 2013).[15]Despite the steady growth in value of agricultural export over the last three years (2016 to 2018), the country's agricultural exports remain below 2 percent of GDP. (CBN 2019)[16]. .

Furthermore, within five years, the Nigeria'sexports decreased at an annualized rate , from USS122 billion in 2012 to USS46.8 billion in 2017. (World bank (2017), [58]. As at 2020 fourth quarter, the value of import stood at N19,898.0 billion while total exports was valued at N12,522.7 billion (CBN (2020), [16], thereby creating a trade imbalance. Therefore, while the boom afforded the government much needed revenue, it also created a serious structural imbalance.(Mordi et al 2010 [44]and Nwanze(2017). [47].There is therefore need to investigate the impact of external sector on the real economy of Nigeria.

Similarly, Nigeria as a developing economy, has been an import-dependent economy. (World Bank (2017), (Udeja and Obi (2015) [57]. The import structure has been unimpressive with persistent high demand for foreign goods and services in the face of dwindling foreign exchange earnings. For instance, import bills, which averaged US$5.9 billion between 1986 and 1998, rose significantly from ₦8,817.5 to ₦9,562.7 billions between 2016 and 2017, giving a percentage increase of 8.5.(World Bank (2017).[58]As at 2020 ending, , goods valued at a total of 55 billion U.S. dollars were imported into Nigeria and the top imports of Nigeria are refined petroleum (US$10B), CBN (2020). [16]. Total imports value which stood at N8,153.79 billion in third quarter of 2021 was 17.32 per cent higher than second quarter of 2021 and 51.47 per cent higher than third quarter of 2020.(CBN 2021)[13]

Furthermore, by 1980s, the external sector was under pressure arising in part from the external debt overhang and from the decline in foreign receipts.The country experienced considerable difficulties in meeting its scheduled external debt service obligations, especially, during most of the periods preceding the Paris Club "Debt Relief Deal" in 2005. Prior to the Paris and the London Club of Creditors debt exit, external debt stock stood at US$35.9 billion in 2004. (Ajai and Oke (2012) [2],and it later started rising again after the exit. CBN Stability Report June

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(2015) [12]. As at December, 31st 2020,the external debt stock was US$4.billion and 36.60 per cent of her Public debt which stood at N32.71 trillion, was external (CBN 2020). [16].The adverse cumulative effect was a sharp rise in the external debt service burden on an economy that had significant deficit financing budget with increasing cost of servicing those debts and the improper direction of the foreign loans to non-productive sector of the economy.. (CBN 2020) .[16].

Likewise, the reduction in Foreign Direct Investment (FDI) inflow resulted to the decline in fresh equity participation in Nigerian enterprises, and as a result, the main source of inflow was from unremitted profits. (Nwanze(2017), [47],(CBN, 2013). [15],(IMF (2009).[29]. There is little or no improvement up to 2020, as the unsustainability of the inflows of FDI has presumably given rise to stunted growth.Udeja and Obi 2015..[57].FDI as percentage of GDP was 0.6 as at December ending 2020. The value of FDI as at, 2016, 2017, 2018, 2019 and 2020 stood atUS$3.45 billion, US$2.41 billion, US$0.78 billion, US$2.31 and US$2;4 respectively(CBN 2020). [16]

In the same vain exchange rate instability, is generally believedto be one of the contributors of economic instability.The rate has been depreciating persistently. According to CBN (2020) [16]statistics, the official exchange rate moved from a low level of ₦0.54/ US $ 1.00 in 1980 to a height of N394.9161 / US $1.00 as at 26th December, 2020.(CBN (2013) [15].

.Finally, there is also controversy among economic scholars and practitioners over the nature of relationship (negative or positive) between external sector macroeconomic indicators and real economicgrowth in Nigeria.. Even where such relationship exists, the issue of the direction of their causal relationship has spurred up much debate with different viewpoints. Studies like (Nwanze (2017), [47],(Udeaja and Obi (2015), [57], (Ayodele, (2004)[7], (Julen,Berasaluce and Jose (2017), [33],(Akinola and Yinusa, 2007), [4] and Mukamil and Rizwan (2016) [45]are examples..

Regrettably, pastanalysis of external sector developments in developing economies (Nigeria inclusive) had been largely devoid of in-depth empirical analysis.(Akinola and Yinusa, 2007). [4], (Mordi et al (2010). [44].Reliable qualitative information and appropriate policy would address constraints facing the external sector but well-articulated econometric analysis of the nature of this study, would provide a stronger basis for future projections on the sector.

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Virtually most of the previous studies reviewed, have some methodological and conceptual problems that undermine their accuracy and thus their efficacy for effective policy purposes. In most of the studies reviewed, no serious attempts have been made in applying unit root test to reduce misleading results, for instance Ajayi and Oke (2012), [2], Obadan (1966) [48], Konya (2004) [38], (Ayodele, (2004) [7];did not apply unit root test.Estimation ofnon-stationary time series on another, which are subject to accidental or induced auto-serial correlation, can give rise to spurious regression butunit root test establishes whether the time series used for the study have a stationary trend or not. The test could form the strategy of reducing (if not eliminating) the risk of spurious regression. (Gujarati and Porter (2009) [28], (Engel and Granger, (1987) [20] and Granger and Newbold,(1974) [26]

Likewise, Konya (2004),[38] and Awokuse (2007),[6], applied cross country analysis.The use of cross-country analysis precludes country specifics. There are at least two important caveats that might affect such results. The first is that such cross-country analysis is plagued by multiplicity of issues of parameter heterogeneity, omitted variables, model uncertainty and measurement error. (Rodvik, (1999) [54]. Inference based on such results, leads to potential biases. Blonigen and Wang (2005) [9]also argue that pooling rich and poor countries together without distinguishing between their level of development leads to incorrect inferences.

Recognizing the above gaps and challenges, there is a need to reexamine theseproblems holistically byupdating the number of observations of the study to 2020. With Nigerian time series and applying the realistic econometric techniques (unit root test, co-integration, error correction model, and granger causality test), to see if a more authentic result could be achieved for effective policy planning and implementations.

The general objective of this study is therefore, to establish the effect of external sector macroeconomic indices on the growth of Nigeria's real economy while the specific objectivesare to investigate the collective and individual effect of the selected and generally accepted key external sector macroeconomic indiceson the growth of Nigeria's real economy.

To achieve these objectives, the hypothesis below is formulated to aid the analysis:

i. There is no significant long run relationship between the growth of Nigeria's real economy proxies by Real Gross Domestic Product (RGDP), and some selectedand generally accepted key external sector macroeconomic indicesnamely: Foreign

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exchange rate, External Debt,Service charges onexternal debt, Total Export, Total Import, Foreign Direct Investment and Trade openness.

ii. There is no direction of causal relationship between RGDP and the above selected and generally accepted key external sector macroeconomic indicators.

2.Review of Related Literature

2.0.

The concept of external **sector and economic growth has**been defined in various ways by different scholars of economics. However,from the various definitions, attempt could be madetoexplainhow external sector indices influence economic growth. This chapter therefore covers the related literature under the conceptual, theoretical and empirical studies..

2.1 Conceptual Framework

2.1.1 External Sector

The external sector encapsulates a country's economic transaction or activities with other countries of the world (trading partners). (Maurice (2005), [42], defines the external sector as that sector of an economy of a country that interacts with the economies of other countries andin services and goods marketalsothe external sector involves exports and imports;in the financial market, it involves capital flows. According to Nwanze (2017),[47] it measures the economic transactions between the residents of an economy and the rest of the world and that economic features related to external sector include: balance of payments, current Account, capital account external debt, exchange rate, foreign exchange reserves, external investment position.

The sector can be in equilibrium or disequilibrium (surplus or deficit). A deficit outcome represents a situation where receipts are inadequate to accommodate the payments, while a surplus position reflects a situation where receipts are in excess of the payments. An ideal external sector is one that is stable and in equilibrium over time. Equilibrium is achieved when external receipts and payments are equal, the exchange rate is stable and external reserves are adequate. However, in more practical terms, such a perfect system hardly exists, .((Ephraim Clerk (2002).[2] and Maurice (2005.)[42].

The external sector affects the real economy, financial and fiscal sectors through the linkages of the various current account components in BOP with output and expenditures and deficit financing as well as its contributions to net foreign assets through the Balance of Payment (BOP) accounts. (CBN (2013)[15]

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2.1.1.1 Overview of Nigeria's External Sector

Nigeria's external sector has remained unchanged since the 1970's with the sector dominated by crude oil exports. Prior to the 1970's, the major non-oil exports were palm oil, rubber, timber, cocoa, tin,columbiteand groundnut etc. Similarly, the import structure had not shown any significant positivechange over the years, as capital goods and raw materials remainedthe bulk of total imports. (World Bank (2017) [58] andMordi et al (2010)[44].The external sector shock, arising from the continued crash in the international prices of crude oil in 2015 and subsequent low inflow of foreign exchange earnings into the economy, impacted adversely on the external account. The negative outcome in the foreign exchange earnings account was further affected by other challenges in the global economy, which included the slowdown in the Chinese economy and the effects of all the normalization of monetary policy in the United States in 2008. Consequently, external sector recorded an overall Balance of Payment deficit of - ₦1,150.13 billion in 2015, which is equivalent of 1.4 per cent of GDP, compared with ₦1,329.32 billion or 1.7 percent of GDP in 2014. (CBN.2015). [12].As at December 2020, the overall BOP position remained in deficit of minus 16.975 billion US Dollars. (CBN, 2020),[2016]

The Nigeria's Current account balance data which was 2.714 USD billion in December, 2016, made a marginal increase of 2.72% of GDP or 10.381 USD billion as at December, 2017(CBN, 2017) . According to CBN (2020), [16]the deficit in current account persisted from December 2019 to December ending, 2020, giving a balance of - 17. 0 and -15.8 billion US Dollars respectively.

The financial sub-account consists of portfolio and direct investments, other long and short-term capital and; capital transfers. Inflow of direct investment stood at N128.million in 1970 which was 2.47 % of GDP, but declined sharply thereafter in 1980 to -N404.1 million, ,giving -0.81% of GDP, thus contributing to the mounting pressures on the capital account. The reduction in foreign direct investment inflow resulted from the decline in fresh equity participation in Nigerian enterprises, thus the main source of inflow was from un-remitted profits. FDI as percentage of GDP was 0.6 as at December ending 2020 while the value of FDI as at 2016, 2017, 2018, 2019 and 2020 stood at US$3.45 billion, US$2.41 billion, US$0.78 billion, US$2.31 and US$2;4 respectively (CBN 2020). [16]

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The delisting of the FGN Bonds from the JP Morgan GB-Emerging market index, short term capital reversal and the effect of the US monetary policy normalization heightened foreign exchange pressure which resulted to depletion of external reserves by 17.4 percent to US$28.28 billion in 2015. (CBN (2015).[12]. The economic report stated that the external reserve level as at September, ending 2020, was $35.96 billion, relative to $35.78 billion at June ending, 2020 and could finance 8.4 months of goods only or 6.9 months of goods and services of import. As at 31st December, 2020, the Nigeria's external reserve which commenced the year 2020 with $38..53 billon in 2019 ending, dropped to $35.37 billion . (CBN (2020)[16].

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2.1.2 .Concept of Economic Growth

Economic growth could be referred to as a sustained and positive change in the level ofaggregate goods and services produced by a country over a certain and agiven period of time. When economic growth is measured over the population ofa given country, it can be stated in terms of per capita income, according to the aggregate goods and services produced in a given year which is divided by the population of the country within that given period. It can also be stated in nominal or in real terms. Based on this, when the increase in the aggregate level of goods and services is deflated by the rate of inflation, real economic growth is achieved, but when it is measured without deflating, it is referred to as nominal economic growth. (Lipsey(1982) [39]and Todaro (1980) [56].

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Economic growth is a key policy objective of any governmentand monetary policy is a major instrument for attainment of such objective. It raises the general standard of living of the populace as measured by per capita national income; makes many kinds of income distribution easier to achieve; enhances the time frame of accomplishing the basic necessities of man, like shelter, food, clothing etc, by a substantial majority of the populace. Lipsey, (1982), [39]Maurice (2005.)[42]

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However, the concept of economic growth has not been quite easy to understand and likewise its measurements in real terms. This is because in most literature of economics, some authors have differentiated economic growth from the term "economic development" in different ways. Authors like Todaro (1980) [56] and Baran (1968) [8]argue that the mere increase in the

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aggregate level of goods and services produced in a country, tells nothing about the quality of life of a citizenry given the threats of global pollution, abysmal lop-sided distribution of aggregate income,environmental degradation, prevalence of chronic and deadly diseases and absence of freedom and justice.These authors believe that attention should be focused not merely on increase in aggregate output and income but also on the total quality and standard of living of the citizenry.

Nevertheless, it is evident that there is yet no satisfactory measure of "quality of life" that can be applied to quantitative measure of aggregate output and income, which could stand the test of time and be acceptable to all and sundry

The apparent consensus suggests that economic growth refers to an increase in the aggregate level of output within a given time period in a country while economic development is seen as an increase in the aggregate level of output and income with due consideration given to the quality of life that hopefully takes into consideration the distribution of income, healthcare, environmental degradation, global pollution, freedom and justice, etc.Todaro (1980) [56].

Generally, economic development is a process by which an economy experiences three main phenomena namely: growth in output, structural changes and institutional changes. If these three phenomena take place, it will lead to a rise in standard of living of the populace. Hence growth could be enjoyed by many economies but not all experience development.However, for growth to be effectively and practically experienced, it should go with development. (Yesufu(1996)[59] and Pauly, (2000)[52].

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2.2. Theoretical Framework

2.2.1Economic Growth

The framework for understanding growth over the long-term is rooted in two main theories that relates to possible sources of growth. These are the growth theory and the growth accounting. Growth theory is concerned with the theoretical modeling of the interactions among growth of factor supplies, savings and capital formation, while growth accounting addresses the qualification of the contributions of the different determinants of growth. (Lipsey, (1982), [39]

Three waves of interest have currently emerged in studying growth. The first wave is the linear-stages growth theory which is associated mainly with the work of Sir F. Harrods (1900-1978)and E. Domar (1914 - 1997) in what was termed the "Harrods–Domar Model" and that

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of Walt W Rostow's theory(Harrods (1948). Generally, the linear stages theory supports the view that economic growth could be achieved through industrialization. The Harrods-Domar theory presupposed that growth depended on a country's savings rate, capital/output ratio, and capital depreciation. This theory has been criticized for three reasons. Firstly, it centers on the assumption of endogeneity for all key parameters. Secondly, it ignores technical change, and lastly, it does not allow for diminishing returns when one factor expands relative to another. (Romers 1994)[53].

The second began with the neoclassical (Solow) model, which contained the thinking that growth reflected technical progress and key inputs, (labour and capital). This school of thought is concerned with the efficient and cost effective allocation of resources and with optimal growth of those resources over time. They hold that countries develop economically via the market and that private markets, without government intervention, are critical for development experienced in the 1980s. The model allowed for diminishing returns, perfect competition but not externalities. The basic problem associated with the neoclassical thinking is that it hardly explains the sources of technical change. (Essien, (2005) [21]and Romer (1994) [53].

The third is the newer alternative growth theory, which entrances a diverse body of theoretical and empirical work that emerged in the 1980s. This is the endogenous growth model. It distinguished itself from the neoclassical growth model by emphasizing that economic growth was an outcome of an economic system, not the result of forces that impinged from outside. Its central idea is that the proximate causes of economic growth were the effort to economize, the accumulation of knowledge, and the accumulation of capital. The newer endogenous growth theory emphasizes that government should be seen as a critical agent that provides key intermediate inputs, establishes rules, and reduces uncertainly, by creating the right macroeconomic environment for growth. It traces growth of output per capita to two main sources: savings and efficiency. In other words it is not only factor accumulation that drives growth but also efforts to utilize them effectively. Consequently, anything that increases efficiency and savings is good for growth. (Romer 1994)[53].

Admittedly, some of the theories discussed have helped immensely in explaining growth of individual countries but they do not completely explain why countries have differing growth trajectory. For instance, under the neoclassical theory, growth was traceable to a single source –

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technological progress, hence economic growth in the long-run was immune from economic policy whether good or bad. The new growth theory, on the other hand, endogenizes the rate of technological progress. It traces the rate of growth of output per capita to two main sources – savings and efficiency. It also argues that policy measures can have an impact on the long-run growth rate of an economy, even if they do not change disaggregate saving rate. Thus countries with high level of efficiency, appropriate economic system, sound economic policy, often tend to grow more rapidly (Romer, 1994) [53] as well as (Contessi& Weinberger, (2009) [17].

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2.2.2. The Theory of External Sector

The theory of external sector isdiscussed in this study under the theories of balance of payments theory Open economy, foreign balance framework and Mundell-Fleming theory.

2.2.4 The Balance of Payments (BOP) Theory

According to Jhingan, (2003) and Thirlwall, (1979); the balance of payments theory states that balance of payments position determines the value of a country's currency or exchange rate in a floating exchange rate regime. If the BOP isfavorable, exchange rate appreciates and when it is unfavourable, exchange rate depreciates. Moreover, the adjustment in exchange rate occurs through the forces of demand and supply of foreign exchange. Unfavourable BOP occurs when the demand for foreign exchange exceeds its supply, thereby putting pressure on the foreign exchange market, and ultimately depreciating the value of domestic currency relative to a foreign currency.(Obaseke (2010) [49], (Odusola and Akinlo (2001) [51].

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In an adverse BOP situation, if exchange rate is below the equilibrium exchange rate, export of goods and service increases and equilibrium will be restored. On the other hand, if exchange rate is above equilibrium rate in a favourable balance of payments situation, exports decline to restore equilibrium in the balance of payments. The theory outlines some key factors that determine the shape of the demand and supply of foreign exchange to include the domestic elasticity of demand for imports, and the elasticity of supply for imports. Ithas added that factors that influence demand and supply of foreign exchange are independent of the exchange rate. Jhingan, (2003) and (Ewubare and Abayori (2015) [23]

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2.2.2.1.Theory of Open Economy

According to Jhingan, (2003),an open economy is one that interacts freely with other economies round the world. It is where,not only domestic factors, but also entities in other countries engage in trade of products (goods and services). External sector modeling starts with a simple open economy model, where total spending in the domestic economy has been subdividedinto domesticand foreign components. Trade can take the form of managerial exchange, technology transfers, and all kinds of goods and services. This can be represented as shown below:

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$$Y = (C - C^*) + (I - I^*) + (G - G^*) + EXP \qquad (2.1)$$

where C is domestic consumption of goods and services. C* is consumption of foreign goods and services, while I is domestic investment in goods and service and I* is investment in foreign goods and services. G and G* are government purchases of domestic and foreign goods and services, respectively. EXP is exports of domestic goods and services. Interaction between EXP and IMP reflect the external sector performance, if EXP exceeds IMP, external sector is said to be in surplus, but where the reverse holds, external sector is said to be in deficit.

2.2.2 Theory of Foreign Balance

According to Matlanyane (2005) [43], the foreign balance framework is built on the assumption that the economy is open and too small to influence the prices of goods and services as well as interest rate in the global market. The framework further assumes all trade-partner countries as the rest of the world. Based on these assumptions, its equation isgiven as follows:

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$$INV(r) + G_o + EX = SA\,(r,y) + IM + TT \qquad (2.4)$$

Where INV represents investment, G_o stands for exogenous government expenditure, SA represents savings, EXP is exports, IM is imports, IT are taxes or tariffs, y represents income and r represents interest rate. The mode of exchange between domestic economy and the rest of the world is the real exchange rate and is computed as eP_fIP_d, where e stands for nominal exchange rate, Pr represents the foreign price level and P_d is the domestic price level. The relationship between exports and the real exchange rate is assumed to be positive i.e. when real exchange rate goes up or depreciates, domestically produced goods become cheaper and attractive to foreigners, thereby increasing domestic exports. This relationship is expressed as

$$EX = f(+eP_fIP_d) \qquad (2.5)$$

Whereas, the real exchange rate and the real domestic income function for imports become:

$$IM = f(-eP_fIP_d, + y) \quad (2.6)$$

Equation (2.6) implies that while real exchange rate is negatively related with imports, it is positively related with income. This suggests that a rise in exchange rate (exchange rate depreciation) makes import more expensive, while home goods become more attractive to domestic residents, thereby reducing imports. On the other hand, a rise in the domestic income increases the demand for imports under the assumption that the imports are normal goods with positive income elasticity of demand. (Jah, 2003)[30].

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2.3 Related Empirical Review

The related empirical studies reviewed under developing , developed and emerging markets economies, have different methodologies, variables and divergent outcome..

Edoumiekumo and Opukri (2013) [19]investigated economic growth factors in Nigeria taking into consideration the role of global trade, using annual time series data that span from 1981 to 2008. The result established a long run relationship among the factors at 5 percent level of significance.

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Nwanze (2017) [47]in his study on external sector variables and macroeconomic stability in Nigeria, using ARDL- Error correction approach, established that the causal effect of external debt stock is positive but insignificant on economic growth. The result also confirms the general weakness of key external sector variables in driving economic activities in Nigeria and highlights the unique case of underutilized fund from abroad.

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Mukamil and Rizwan (2016) [45]examined the external sector and economic growth of Pakistan. The study used Quarterly data that covered 1990 to 2014, applying Vector Auto Regression and Error Correction model. The study revealed that financial integration has positive while trade integration has negative impact on Pakistan economic growth.

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Kamik and. Femandes (2005) [34]constructed a macro-econometric model for United Arab Emirate (UAE), a country that has similar features with Nigeria, being oil-producing and an oil-dependent economy. Instrument Target Approach was used to capture the impact of the external sector on the rest of the economy. Twenty five equations were used to represent the four sectors of the economy (output, government, monetary and external), out of which three behavioural equations namely investment income, nominal exports, nominal imports, and two identities were

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used to represent the external sector of the economy. The simulation results indicated that the oil sector had a significant multiplier impact where a unit increase in oil production raises real oil sector by 1.29 million dirham.

Amini, .Oushehi;, Ahranjani, and Aminii (2012).[5]examined the effect of trade liberalization on BOP and economic growth in Iran using auto regressive distributed lags and the ECM method. They tested for trade balance, internal income, foreign income, real exchange rate, and trade liberalization. Their results showed that the effects of trade liberalization on the trade balance and economic growth is positive and significant in the long run, but its effects on the current account of BOP are not significant.

Ajayi and Oke (2012) [2]investigated the effect of external debt burden on the economic growth and development of Nigeria, using the regression analysis OLS. They found that external debt burden had an adverse effect on the growth of the economy.

Konya (2004), [38] investigated export-led growth and growth-driven export by testing for Granger causality relationship between real export and real GDP in OECD countries with annual data between (1960 - 1997) and finds a mix result in their causal relationships.

JulenBerasaluce and Jose (2017) [33] in their research titled “Economic growth and External sector: Evidence from Korea, and lesson for Mexico” using quarterly data, applying Granger causality test, concluded that export and FDI are not driving growth in Korea

Awokuse (2007) [6], using, panel data and time series for three transition economies, investigated how total trade export and import expansion influenced the output growth of Bulgaria, Czech Republic and Poland. He employed a panel of multivariate co-integrated Vector Autoregressive technique to establish the links between output growth, export and import. The findings provides support to import as an engine of output growth. The author nullifies the singular support ofmany previous studies for export as the driver of growth and exclusion of import**.**

Adelowokan and Maku (2013) [3]investigated the relationship between non-oil trade and economic growth in Nigeria between 1975 and 2013, with emphasis on aggregate trade, export and import and applying Autoregressive Distributive Lag(ARDL). The result revealed that non-oil export is paramount to GDP in the short run while aggregate trade, export and import have significant influence on growth in the long run. They recommended that policy makers should establish policies that will enhance non-oil export.

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In summary, there appear to be a general consensus from all the above literature survey that, overall, growth must be "endogenous" meaning that growth must respond to economic forces or different economic systems and policies and that an economic system, such as central planning, is likely bound to stifle economic efficiency and growth while a mixed market economy increases productivity.

Secondly, empirically, different methods and variables have been employed to investigate the external sector effect on growth of the economy in the past with variations in results.. The variations in methodology and variables reflectstructureof individual economies and therefore, accounts for these differences.

3. Methodological Framework

3.0.

This section highlights the various methods adopted in organizing this study and it covers mainly research designs, sources for data collection, model specification, estimation technique and procedures. The study made use of reliable and statistical secondary data sourced from Central Bank of Nigeria (CBN) Statistical Bulletin 2020,Annual Reports and Statement of Accounts, various issues, and CBN Economic and Financial Reviews, spanning from 1981 to 2020. References were made on textbooks and International (World Bank) Journals.

3.1 Model Specification

In specifying the effect of external sector variables on the real economy of Nigeria, itis assumed that increase in the availability of financial resources through trade and external debt (capital) will increase real output, based on endogenous growth theory.(Romer 1994) [53] and (Rodrik (1999)[54]. Exchange rate devaluation or depreciation theoretically is expected to induce higher import prices, external shocks, and accentuates inflationary expectations whileover valuation/appreciation induces increase in exportprices, (Mundel (1973) [46],(Odusola and Akinlo, (2001) [51], (Akinlo, andYinusa (2007) [4] (Obaseke (2001)[49].11`

The FDI indicates exposure of the domestic economy to the external sector. High external debt over hang and its attendant service interest charges and high import bills will lead to depletion of external reserves and ultimately sluggish growth of the real economy(Contensi and Weinberger (2009) [17]

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Leaning on modified open economy theory (Jhingan, (2003) [31]and the endogenous growth theory, (Romers (1994) [53], the specification could be written in both functional and mathematicallylinear form and in natural-log form (to make the calculationless tedious)as stated as below:

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RGDP= f(EXTD, EXP, IMP ,FXR, FDIR, EXDINT, TOR μ) …. …(3.1)

$lnRGDP_t$= β0- β1lnEXTDt+β2lnEXPt-β3lnIMPt+ β4FXRt+β5lnFDIRt–β6EXDINT + β7TORt +μt… …… (3.2)

Where:

RGDP = Real Economic growth
EXTD = External Debt
EXP. = Total Export
IMP = Total Import
FXR = Nominal Foreign Exchange Rate
FDIR = Foreign Direct Investment (as percentage of RGPD)
EXDINT = External Debt Service Interest charges.
TOR = Trade Openness (ratio of Export + Import) to GDP)
ut = Error term

Theoretical priori expectations are as below:

β1, β3, and β6, < 0; β2, β5, and β7 > 0; and β4< 0 or > 0;

Hence the above estimable long-run linear equation 3.2 posits that the real economic growthproxies by real Gross Domestic Product (RGDP) in Nigeria is a function of external sector macroeconomic indicators which are also independent variables while RGDP is the dependent variable, 't' indicates time dependent and μt is an unobservable component that is assumed "white noise"

3.2 Estimation Technique and Procedure:

Prior to testing for long-run relationship using co-integration test, the level series OLS regression was applied at first stage to test for long run relationship between real economic growth and the selectedexternal sector forselected indices. However, being conscious of the characteristics of the time series used, careful note was taken on the properties of the stochastic error terms that might have entered the model which could give rise to spurious regression. Consequently, a further rigorous investigation was carried out using Augmented Dickey Fuller (ADF) (1981)[18] unit root test to check the stationary property of the variables (if any) in the model.

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The purpose of Unit root test is to establish if the time series have a stationary trend, and, if non-stationary, to show the order of integration through 'differencing'. A time series is stationary if its means, variance and auto-variance are not time- dependent. (Gujarati and Porters (2009) [28].The assumption is that the time series used for this research have unit root stochastic process The process could be represented as follows:

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$$\Delta Yt = \beta o + \beta 1t + \text{ɜ}Yt\text{-}1 + \ldots \Sigma \acute{a}i\, \Delta Yt - i + \text{ɛ}t \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (3.3)$$
$$i=1$$

where Y is the single time series for (EXTD, FDIRn, EXP, IMP, FXR, EXDINT, TOR) under investigation and β the parameter coefficient, ɛt is a pure white noise error term, άi and ɜ are coefficients of the lag terms and m is the length of the lag terms which is automatically selected using Akaike information criteria. If 'ɜ' is 0, then there is unit root, but if it is less than zero (negative), the null hypothesis is rejected and the alternative that the series is stationary is accepted.

Capitalizing on the likelihood of the co-movement in the behavior of the variables, which implies that there is possibility that they trend together towards stable long run equilibrium, Johansen (1991), co-integration test was applied. The objective of this test is to determine if there is existence of long-run equilibrium relationships among variables used in this research. As pointed out by Engle and Granger (1987) [20], the concept of co-integration creates a link between integrated process and the concept of steady state of equilibrium.Co-integration occurs when two or more time series variables which themselves may be non-stationary, drift together at roughly the same time. This implies that a linear combination of the variables is stationary. The null hypothesis is that the variables are not co-integrated. Based on this, we specify the full

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information maximum likelihood based on the vector autoregressive equation (VAR) Johansen (1991) [32], as mathematically stated below:

$y_t = a_1 y_{t-1} + \ldots + a_k y_{t-k} + \acute{o} x_t + \mu_t \ldots\ldots$ (3.4)

where:

yt is a k-vector of 'differenced' stationary time series, 'k' being the lag length for the first order differenced variables, /(1), 'xt' is a vector of deterministic variables, 'a' is a constant, ó are the coefficient of the deterministic variables and μ_t is a vector of innovations or error term and it is known as the adjustment parameters in the vector error correction model, while "t" indicates time -dependent.Using this method, the equation could be estimated in an unrestricted form and then tested whether we can reject the restriction implied by the residual rank of the co-integration.

Applying the maximal non-zero eigen-values and the trace test of the maximum likelihood ratio, with reference to the level of significance, the number of co-integration relations could be determined which indicate the existence of long run relationship Johansen 1991.

However, Co-integration process ignores the short run dynamics that might cause a relation not to hold in the short run and this formed the basis for application of Error Correction Mechanism (ECM). ECM is an extension of the partial adjustment model in co-integration technique which is the traditional approach to modeling of short run dynamics with long run equilibrium.It thus preserves the long run relationship while specifying the system in a short run dynamic way. Granger and Newbold (1974) [26]and Engel and Granger (1987) [20]are among the studies that have proved that a co-integration is a sufficient condition to run an ECM process.

A vector error correction model is a restricted VAR (Vector auto- regression) that has co-integration restriction built into the specification so that it is designed for use with non-stationary error correction term, since the deviation from the long equilibrium is corrected gradually through series of partial short-adjustment, Gujarat and Porters (2009) [28].

A search for parsimony in this dynamic model typically follows the general–to-specific modeling (using various information criteria (Akaike, Schwarz, log likelihood, etc) which minimizes the possibility of estimating relationship while retaining long-run information, if the variables do not

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have the same order of integration, (Engel and Granger (1987) [20]. The functional form of the model, which initially is presented in a general form, incorporating many lag terms, is therefore later reduced to a specific or parsimonious structure by empirical testing and elimination and this gives the final and more precise result of the estimation.

Based on this, the specification is re-parameterized in a dynamic process and OLS regression applied with the equation as shown below:

$$\ln RGDP_t = a_0 + \sum_{i-=1} a_i \ln RGDPt\text{-}1 + \sum_{i=0} a_i Zt\text{-}1 + aiecmt\text{-}1 + \mu \quad \ldots\ldots \quad (3.5)$$

Where:

$a_0$is a constant,$\ln RGDP_t$is a vector of endogenous variable and dependent variable, , Zt-1 is lag term of a vector of explanatory variables as already explained and $a_i$is the parameter coefficients, lnRGDPt-1 is the lag term of the dependent variable, the ecmt-1 or error correction term is the residuals from the long-run co-integration process and its coefficient measures the speed of the adjustment of the disequilibrium while μ_I is the white noise.

As long as the co-integrating vector (ECM) ecm_{t-1} is stationary and well- defined, (negative), the ECM estimation will then confirm the earlier proposition that the variables are co-integrated. Equations 3, constitutes the maintained hypotheses for the ECM specification search. The insignificant or redundant variables are usually omitted at the parsimonious stage. Finally, diagnostic tests are performed on the results with a view to validating the models. Gujarat and Porters (2009) [28], and Engel and Granger (1987). [20]

The Granger causality test is important in determining if it is RGDP or external sector macroeconomic variables are significant in either enhancing or deteriorating the rate of each other in Nigeria. Although correlation analysis deals with dependence of one variable on the other, it does not imply causation in the real sense. (Zellner, 1979).[60]. A statistical relationship in itself cannot logically imply causation.(Kendal and Stuat, 1961) [36]. Consequently, the Granger Causality test(Granger (1969) [27]which measures both causation and direction was performed on the variables. The testenables determination of whether lagged information on RGDP (dependent variable) as well as that of the selected external sector indicators, have any

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statistical significant role in explaining the effect of external sector variables on Nigeria's real Gross Domestic Product. The test was run with an optimal lag of two.

According to Granger, (1969) [27],variable X Granger causes variable Y if the past values of X can be used to predict Y more accurately than simply using the past values of Y. The test involves estimating the pair of regression as expressed below using Foreign exchange rate (independent variable) and Real Gross Domestic Product (dependent variable) as example:

$$RGDPt = ao + \sum_{i=1}^{n} \alpha i FXRt\text{-}i + \sum_{j=1}^{n} \beta j \ln RGDPt\text{–}j + \mu t_1 \ldots\ldots\ldots (3.6)$$

$$FXR_t = bo + \sum_{i=1}^{n} \phi i RGDP.t - i + \sum_{j=1}^{n} \varphi j FXRt\text{–}j + \mu t_2 \ldots\ldots\ldots (3.7)$$

Equation 3.6 postulates that current RGDP is related to a number of foreign exchange lags (FXRt–i) or past values of FXR as well as its own past values (RGDPt–j) where ά and β are their coefficients, i and j indicate length of time lags while µt1 is the error term and n is the number of lag terms included.RGDPt is the current value of real GDP.It is assumed that the error terms µt1 and µt2 are uncorrelated. The F-statistic test is used for the joint test of hypothesis.

In like manner, equation (3.7) postulates that current foreign exchange rate (FXRt) is related to a number of RGDP lags ((RGDPt–i) or past values of RGDP as well as its own past valuesFXRt–j, where n is the number of lag terms. This process applies to each parameter used in the study. Bilateral, unilateral and dependent relationship can be established.

Bilateral causal relation exists when both null hypotheses are rejected indicating that both coefficients are statistically and significantly different from zero in both regression. This implies a feed-back.Unilateral causal relation exists when one of the null hypotheses is accepted and the other rejected.Lastly, independent causal relation exist when we both null hypotheses are accepted. (Gujarati, and Porters (2009) [28].

4. Presentation and Analysis of Data

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This section presents the data, the empirical results and discussions on the relevant findings from the models' specifications, developmentand tested in this study.

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4.1 Level Series OLS Estimation Result

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LnRGDP = f(lnEXTD, lnEXP,lnIMP, FXR, FDIR, , EXDINT. TOR)
Dependent Variable: lnRGDP
Method: Least Squares
Date: 10/12/2021Time: 08:05
Sample(adjusted): 1981 2020
Included observations: 40 after adjusting endpoints
Table 1: The Ordinary Least Square (OLS) level series

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnEXTD	-0.079865	0.020213	-3.95117	0.0005*
FDIR	0.089915	0.023241	3.868809	0.0010*
lnEXDINT	-0.208069	0.128492	-1.619314	0.1729
FXR	0.246828	0.091031	2.711508	0.0081*
lnIMP	-0.729104	0.254512	-2,864713	0.0072*
lnEXP	0.206251	0.147961	1.393955	0.1672
TOR	0.029183	0.029183	1.119785	0.1685
C	10.68752	0.382888	27.91293	0.0000
R-squared	0.862649	Mean dependent var		13.91639
Adjusted R-squared	0 76198	S.D. dependent var		2.180303
S.E. of regression	0.215755	Akaike info criterion		0.000554
Sum squared resid	0.898474	Schwarz criterion		0.376728
Log likelihood	7.892213	F-statistic		325.0974
Durbin-Watson stat	1.207724	Prob(F-statistic)		0.000000

Source:E-View Econometric Computer Software Application, Version 6

Analysis OLS Level Series Result

The Ordinary Least Square (OLS) level series result as presented on table 1 above, shows that the coefficient of determination (R-square (0.86) ' indicates that 89 per cent of the variations in Real economic growth (RGDP) are determined by the combined effect of changes in the explanatory variables (external sector indicators). The F-statistics (325.097) confirms further that the explanatory variables are jointly and statistically important in explaining the variations in the real economic growth process. The selected explanatory variables are rightly signed in accordance with the priori expectations. Total export,EXDINT and TOR were not significant.

However, despite these results, a cursory look at the diagnostics tests suggests possible spurious regression (low (DW- statistics ratio (1.20) and very high R-squared (0.86) which implies time-dependency of the variables at ordinary level. This implication therefore calls for more rigorous tests of looking at the inherent properties of these time series by testing for stationarity or otherwise. The variables were therefore subjected to Augmented Dickey Fuller (1981) [18]unit root test

Table 2 Summary of Unit Root Test Result Data Presentation

VARIABLE	AT LEVEL		FIRST ORDER DIFFERENCE		Remarks
	ADF Test Stat	Order of Integration	ADF Test Stat	Order of Integration	
ln(RGDP	-1.777079	-	-5.900245	/ (1)	**
Ln (EXP)	-2.187727	-	-3.226134	/ (1)	***
ln(IMP)	-2.551152	-	-3.378214	/ (1)	**
(FXR)	-1.336187	-	-3.614013	/ (1)	**
ln (EXTD)	-2.223512	-	--6.966965	/ (1)	***
ln(EXDINT)	-2.259884	-	-5.900245	/ (1)	***
(FDIR)	-1.921806	-	-4.205172	/ (1)	***
(TOR)	-1.985359	_ -	-4.205172	/ (1)	***
Note:	Critical Value: 1% = -3.6852 5% = -2.9705 10% = -2.6242		Critical Value: 1% = -3.6959 5% = -2.9750 10% = -2.6265		

* = 10% level of Significance ** = 5 % level of significance
*** = 1 % level of significance

Source: E-View Econometric Computer Software application, Version 6 (See Appendix 3)

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Analysis of the Unit Root Test Result

In view of the suspected time-dependent feature of the data used for this research, the ADF (1981) unit root test was applied separately on all the variables at ordinary and first order levels of differencing. The objective of this test is to establish whether the time series are stationarytrend or not. The summary of the unit root test results as presented on Table 2 above shows that the null hypothesis of non-stationarity is accepted, implying that the variables are not stationary at level but could only be rejected after the first order /(1) differencing, (ie they became stationary after first order differencing) for all the selected variables at one and 5 per cent levels of significance. This is evidenced by ADF test result at the ordinary level, which shows that the computed negative ADF test statistics for each variable is less than the Mackinnon critical values (Mackinnon, (1991) [40], in absolute term.

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Table 3.Summary of Johansen Co-integration Data Presentation

Included observations: 40
Test Assumption: linear deterministic Trend in the data
Series: LnRGDP, FDIR,FXR, lnIMP,lnEXP, , lnEXTD, lnEXDINT. TOR.
Lags interval: 1 to 1

Eigen- Value	Likelihood Ratio	5% Critical value	1% Critical value	Hypothesized No of CE (s)
0.948131	300.8006	124.42	133.61	None**
0.907041	203.2012	94.21	103.20	At most 1**
0.884455	189.5467	68.52	76.65	At most 2**
0.802773	131.0535	47.19	54.48	At most 3**
0.764715	44.09189	29.57	35.57	At most 4**
0.201013	12.02115	15.42	20.13	At most 5
0.151012	10.01305	12.34	15.12	At most 6
0.012397	0.424067	3.68	6.64	At most 7

*(**) denotes rejection of the hypothesis at 5%(1%) significance level
L.R. test indicates five (5) co-integrating equation(s) at 5% significance level

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Source: E-View Econometric Computer Software application, Version 6

4.3Analysis of Johansen's Co-integration Tests Results

The objective of this test is to determine if there is existence of long-run equilibrium relationships among the variables used in this study. Based on the outcome of the unit root test which confirms that all the variables are 'difference' stationary at first order /(1) level, a co-integration test was applied using the Johansen (1991) [32]method in order to confirm if the variables are co- integrated or not; in other words, if there is a long-run relationship.

The null hypothesis is that there is no co-integrating relationships between the dependent and the independent variables. The decision rule is that the computed likelihood ratios should be greater than the critical values for co-integration relation to exist. The eigenvalue must also be non-zero. Based on these rules, the number of the co-integrating relations in the model was determined. Gujarati and Porters (2009) [28].

The co-integration result as presented on Table 3 shows that there are five (5) co-integration relations at both one and five percent significant level, implying long run relationship, at both one and five per cent level of significance between RGDP and the explanatory variables. This implies that the test statistics rejected the null hypothesis that the variables are not co-integratedin addition,accepted the alternative that they are stationary.

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Table 4. Summary of Parsimonious Error Correction (ECM) Model

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Dependent Variable: Dln (RGDP)
Method: Least Squares
Date: 10/12/2021 Time: 12.:48
Sample (adjusted): 1982 2020
Included observation: 39 (after adjusting endpoints)

Variable	Coefficie	Std. Error	t-Statistic	Prob.
C	2.010053	0.299062	-6.721191	0.0001
Dln(GDP(-1))	0.965136	0.624621	1.545155	0.1352
Dln(GDP(-2))	1.572072	0.386204	4.070576	0.0005*
Dln(TOR-2))	1.244033	1.358973	0.915422	0.3611
Dln(EXTD(-2))	-1.065223	0.252853	- 4.212816	0.0003*
Dln(EXP(-1))	- 0.002995	0.010241	-0.292451	0.2153
Dln(IMP(2))	-1.150243	0..311456	- 3.693115	0.0011*
Dln(IMP(-2))	- 1.110234	0.412351	- 2.692448	0.0087
Dln(FDIR(-2))	0.038391	0.013111	2.928151	0.0069*
Dln(EXDINTI(-2))	- 0. 047491	0.01103	- 4.305230	0.0007*
Dln(FXR-2))	0.035641	0.011032	3.230692	0.0067*
ECM02(-1)	-1.140214	0.296413	-3.846707	0.0009*
---	---	---	---	---
	0.780912		mean dependent var	0.04322
R-squared				
Adjusted R-squared	0.711234		S.D dependent var	0.201011
4 S.E of regression	0.200234		Akaike info criterion	-2.20360

Sum squared resid	0.802396	Schwarz criterion	0.11354
Log likelihood	-18.43536	F-statistic	15.726027
Durbin-Watson stat	2.318802	Prob.(F-statistic	0.000201

Source: E-View econometric computer software application, Version 6

Analysis of ECM Result

The parsimonious Error Correction Model (ECM) result presented in table 4 above gives the final and more precise estimation result when compared with the OLS level series model. All the variables are rightly signed as predicted except total export (EXP) (negative). The coefficient of determination ((R^2) which measures the overall goodness of fit is still significantly high. This implies that 84 per cent of variation in RGDP is determined, in aggregate, by the variations in the selected external sector macroeconomic indicators in the end. The F- statistics ratio of 15.7 is significant, indicating that the explanatory variables are collectively important in explaining the variations in RGDP in Nigeria. The Durbin-Watson statistics test ratio of 2.318 also strongly suggests absence of auto- correlation, implying that the unit root test has been effective in screening the variables to become stationary. The variables are correctly signed according to the priori expectation except export with inverse but non-significant relation to RGDP, indicating a smaller negative impact.

Thepositive and significant relationship of exchangewith RGDPimplies high and persistent rate of depreciation. It is an important factor in investment decision as volatility in exchange rate does not encourage long-termprojects decision. Depreciation also increases cost of importation of production input and therefore affects RGDP adversely. It also increases cost of external debt. Theoretically, an exchange rate overvaluation could hinder the pace of economic growth while an undervaluation is expected to provide an enabling environment for growth, under a regime of low inflation and stable economy. In the real sense, for a developing economy like Nigeria, with high inflation tendency, both over valuation and undervaluation are inimical to growth. (Maku,((2006) [41]

Total import significant and negative relationship with GDP implies adverse impact due to its increase on high demand of foreign goods and services and importation of manufacturing inputs. .(Khan, (1974). [37] (Fischer (1998) [25].(Akinlo, andYinusa (2017) [4].

FDI maintains significant and positive relationship with RGDP indicating a good contributor to RGDP, while positive but non-significant relation of TOR implies that it does not contribute

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adequately to RGDP. Both EXD and EXDINT have negative and significant relationship and therefore, they are not contributing to the growth of RGDP. This could be attributed to the improper administration of borrowed funds to non-productive sector of the economy and high payment of interest charges on debt .(Nwanze (2017).[47] and (Udeaja and Obi (2015) [57]

Furthermore, keeping other variables constant, one percent increase in nominal FXR and total IMP induce3.5% and 11% reduction on RGDP respectively, on annualized basis.. Total export has negative relationship with RGDP. The sub-optimal performance of totalexport could be attributed to non-diversification of the export sector because of high dependence on crude oil-export sector.

The lag of the dependent variable (RGDPt-2) was equally significant in explaining the effect of selected external sector indicators on RGDP.The impact reflected inter-temporal dependence of RGDP, with the level of RGDP1-t at any one period, determining the level in another.

The coefficient of the ECM term (-0.141) which measures the speed of the adjustment at which equilibrium is restored, is significant and rightly signed (negative) at 5 percent level, and therefore confirms the earlier proposition that the variables are cointegrated.(Gujarati and Porters(2009)[28]

The ECMcoefficient (-1.140214) also gives the proportion of the short run disequilibrium in the explanatory variables accumulated in the previous period that is corrected in the current period. The speed implies that in the long run, 14 per cent of the short run disequilibrium of RGDP in Nigeria is corrected within a lag during the period under review. (One lag is one year in this study). This result suggests that in the long-run,RGDP in Nigeria, adjusts slowly to short run disequilibrium changes in the selected external sector indices since only 14 per cent of the accumulated disequilibrium in RGDPt is corrected within a lag (one year in this study). It implies lag effect. These findings are in tandem with Nwanze (2017.) [47], (Akanbi. and Dutroit (2010) [1] and .(Ajayi, and Oke,(2012).[2]..

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Table 5.Summary of Data Presentation on Pairwise Granger Causality Test

Sample: 1982 – 2020
Date: 10 /12/2021 Time: 1.55
Lags = 2
Observation = 39 (After Adjusting Endpoints)

NULL HYPOTHESIS	F-STATISTICS	PROBABILITY
Ln(RGDP) doesn't Granger cause ln(EXTD)	0.41861	0.68288
Ln(EXTD) doesn'tnot Granger cause ln(RGDP)	0.34915	0.70896
Ln(RGDP) does not Granger cause ln(FDIR)	**7.02984**	**0.00416***
Ln(FDIR does n ot granger cause ln(RGD	**3.01346**	**0.04571***
Ln (RGDP.) does **not Granger cause ln(FXR.)**	**6.55336**	**0.00502***
Ln(FXR.) does not Granger cause ln(RGDP.)	**1.25643**	**0.30063**
Ln(RGDP))does not Granger cause ln(EXDINT)	**3.84841**	**0.68288**
Ln(EXDINT) does not Granger cause ln(RGDP)	**2.28160**	**0.12476**
Ln(RGDP) does not Granger cause ln(EXP)	**8.05879**	**0.00223***
Ln(EXP) does not Granger cause ln(RGDP)	**2.14023**	**0.14134**
Ln(RGDP) does not Granger cause ln(IMP)	**0.41861**	**0.03667***
Ln(IMP) does not Granger cause ln(RGDP)	**0.34915**	**0.70896**
TOR does not Granger cause ln(RGDP)	**1. 26657**	**0.30073**
Ln RGDP does not Granger cause ITOR)	**6.49734**	**0.00582***

At 5 per cent significant level

Source: E-View econometric computer software application version 6.

Summary of Pairwise Granger Causality Test Analysis

The essence of this test is to establish the direction of causal relationship between real economic growth and selected external sector macroeconomic indicators and it was run on the model with optimal lag of 2. The test is preferred to traditional correlation method which measures only relationship without direction. Establishing which variable causes or promotes the other, will enhance effective economic planning especially in determining the relative weights to be assigned to these macroeconomic variables when planning in order to achieve sustainable economic growth.

As presented in table 5 and capitalizing on the F-statistics ratios and the p-values, there exists unilateral causal relationships between (RGDP) and(EXP, TOR, FXR, and EXTR), using their F-

statistics and probability ratios respectively at 5 percent level of significance without feedback. Significant bilateral causality runs between RGDP and FDI implying that the variables determine each other.Independent causality runs between the external debt and total imports variables and RGDP implying none of the variables determined the other.

The general results imply that causal relationships between RGDP and the selected external sector indicators aremixed .However, it agrees with the findings ofKara and Pentecost (2000)[35] and Konya (2004) [38]which show that causality tests are mixed and inconclusive depending on the variables used**.**

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Summary and Conclusion

This study examined effect of external sector macroeconomic indiceson the real economic growth in Nigeria from the 1981 to 2020. . The overall import of the findings and analysis imply that the level of external sector indices' contribution to the growth of Nigeria's real economy is suboptimal and therefore the indices have adverse impact on RGDP . The study therefore recommends as follows:

i. that government should strive to achieve: sustainable price stability through effective management of exchange rate; economic, efficiency driven by infrastructural development and enhanced technological capabilities to enhance production capacity and diversification into non-oil sector to beep up exportproduction.

ii. Managerial debt efficiency (in addition to adequate monitoring) that would channelexternal borrowed funds to their specific tiedprojects should be highly emphasized.

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iii. The policy makers should providea laid down stable polity, relevant and consistent economic reforms and policies that would encourage TOR and FDIR.

iv. The policy makers should take cognizance of the lag effect and design policies in line with the expected magnitude of the expected changes

v. Furthermore, effective management of the external sectorthrough diversification into non-oil sector production and investment will also increase export earnings.

vi. In addition, imports constitute a significant share of inputs for both domestic production and final consumption. Import demandis traditionally a function of output

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and price. For intermediate imports, the key driver is domestic production activity. Nigeria being an import dependent country with its attendant high import bills, the stabilization of foreign exchange rate in order to reduce cost of production and increase demand, is also pertinent. This will also enhance export

vii. Finally, politicalstability shapes the overall investment climate and determines the degree of confidence investors have in an economy. It aids planning but macroeconomic andsocial instability is quite undesirable and its result shows adverse effect on growth. Therefore, there is need to restore the confidence of the existing and prospective investors byrestoring politicalstability within the economy in order enhance economic growth.

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Referencesb

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